Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Dois Webb
Air Permits Division
Office of Permitting, Remediation & Registration

Date: April 12, 2007

From: Jong-Song Lee, Ph.D.
Toxicology Section
Chief Engineer's Office

Subject: Health effects review of emissions from Asarco Inc., El Paso, El Paso County, Texas (Permit Renewal No. 20345 and TOX Control No. 6415)

At your request, we conducted a health effects review of emissions from Asarco's Primary Copper Smelter Plant in El Paso. Site-wide refined modeling was conducted at any location including all ambient monitoring sites and schools within 50 km of the plant. The facility is located in an industrial area. The maximum off-property ground level concentrations ($GLCs_{max}$) are predicted to occur at or near the property line. Modeling results were compared to their respective Effects Screening Levels (ESLs).

Modeling results indicate that, except for arsenic, copper dust, manganese oxide, and silver, the predicted short-term (1-hour average) and long-term (annual average) $GLCs_{max}$ for all other 21 speciated particulate matter constituents are below their ESLs. The predicted impacts for the listed 21 compounds meet Tier I criteria of the Effects Evaluation Procedure. Therefore, the proposed concentrations for those 21 particulate matter constituents are acceptable.

The predicted short-term $GLCs_{max}$ for arsenic, manganese oxide, and silver are 1.7, 1.7 and 1.3 times their ESLs, respectively. The predicted short-term impacts are below their respective ESLs at any non-industrial receptors including all monitoring sites and schools in Mexico, New Mexico and El Paso. The predicted long-term $GLCs_{max}$ are below their ESLs. The predicted impacts meet Tier II Criteria of the Effects Evaluation Procedure. Therefore, the proposed concentrations for arsenic, manganese oxide, and silver are also acceptable.

The predicted short-term GLC_{max} for copper dust is 2.2 times its ESL. The predicted frequency of ESL exceedance is 13 hours per year. All receptors with modeling impacts exceed its ESL are located immediately adjacent to the property line within the railroad right-of-way east of the plant. The predicted short-term impacts are below its ESL at any non-industrial receptors including all monitoring sites and schools in Mexico, New Mexico and El Paso. The predicted long-term GLC_{max}, however, is below its ESL. Considering the magnitude and frequency of ESL exceedance, that the predicted short-term impacts are below its ESL at any non-industrial receptors, and that the long-term ESL is not exceeded at any receptors, the predicted impacts for copper dust are allowable.

In conclusion, we do not expect adverse health effects to occur among the general public, as a result of exposure to the proposed emissions from this facility. If you have any questions, please call me at 239-1790.

Request for Comments to Toxicology & Risk Assessment Section RUSH

Date Submitted:	4-10-07	Application Type : Renewal	TARA Control No:	6415	lee
Permit No.:	20345		Account No.:	EE-0007-G	
Company Name:	ASARCO Incorporated		Facility:	Primary Copper Smelter	
Street	PO Box 1111		Permit Engineer:	Dois Webb x-1575	
City, County	El Paso, Texas 79999-1111		Model Type : Refined Model AERMOD		
New Emissions (%):	0				

IMPACTS SUMMARY

		One Hour					Annual		
Constituent	CAS No.	ESL	GLCmax	2*λmax	GLCni	λni	ESL	GLCmax	GLCni
Alumina		50	1.8				5	0.04	
Antimony		5	0.2				0.5	0.004	
Arsenic		0.1	0.17	0			0.01	0.003	
Barium		5.0	0.05				0.5	0.001	

If the GLCmax is greater than the ESL, please provide the following information and attach an area map. Distances are in feet.

Distance from the property line to GLCmax:	~~50~~ 100 m		Receptor Type:	Industrial
Distance from the property line to GLCni:			Receptor Type:	
Describe modification:	Renewal, modeling required by Commission			
List other sources at the site emitting the same constituents		All sources modeled		
Was sitewide modeling conducted?	YES			
Describe the area surrounding the facility and any zoning restrictions:		See attached map		
Controls (*specify*):	Variety of controls that meet BACT, Fabric filters, and scrubbers			
General Comments:				

TARA Approval Stamp

See attached memorandum dated 4/12/07.

Request for Comments to Toxicology & Risk Assessment Section

Continuation Sheet for Permit No. _____ Sheet ___ of ____

IMPACTS SUMMARY

		One Hour					Annual		
Constituent	CAS No.	ESL	GLCmax	2*λmax	GLCni	λni	ESL	GLCmax	GLCni
Bismuth		50	0.17				5.0	0.003	
Cadmium		0.1	0.04				0.01	0.001	
Calcium Oxide		20	5.3				2	0.08	
Chromium		1.0	0.02				0.1	0.0003	
Cobalt		0.2	0.04				0.02	0.001	
Copper Dust		10.0	21.9	0			1.0	0.15	
Copper Fume		1.0	1.0				0.1	0.01	
Gypsum		50	1.7				5.0	0.03	
Iron Dust		50					5		
Iron Oxide Fume		50	9.2				5	0.1	
Limestone Dust		50	5.3				5	0.08	
Manganese Oxide		2	3.3	0			0.2	0.02	
Mercury		0.25	.0002				0.025	0.00001	
Nickel		0.15	0.06				0.015	0.001	
Selenium		2.0	0.04				0.2	0.0008	
Amorphous Silica(Respirable)		10	1.1				1.0	0.02	
Crystalline Silica9Respirable)		10	4.1				1.0	0.1	
Silver		0.1	0.13	0			0.01	0.002	
Tellurium		1.0	0.09				0.1	0.001	
Thallium		1.0	0.008				0.1	0.0002	
Zinc Oxide		50	2.0				5	0.02	